



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,491	12/31/2003	Keith D. Jones	42P17767	1802
8791	7590	07/12/2005	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN			CLARK, SHEILA V	
12400 WILSHIRE BOULEVARD				
SEVENTH FLOOR			ART UNIT	
LOS ANGELES, CA 90025-1030			PAPER NUMBER	
			2815	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/750,491	Applicant(s) JONES, KEITH D.	
	Examiner S. V. Clark	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12, 14 and 17-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10, 12, 14, 20 and 21 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 7, 8, 17, 18, 22 and 23 is/are rejected.
- 7) ☒ Claim(s) 3, 6, 9 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 5, 7, 8, 17, 18, 22, 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Papathomas.

Papathomas shows in figure 1 an electronic device having a substrate 2, at least one build up layer 14, a die 6, an interconnect (i.e. balls) formed on the substrate connecting the die and the substrate. The build up layer 14 is described as having the characteristics recited in the claims and may comprise such binders as epoxy resin and a filler (i.e. zirconium tungstate) having a negative coefficient of thermal expansion (see paragraph (0043), lines 10-11).

With regard to claim 10 the components recited in the claims have been described above. Differing terminology recited in the claims will be discussed. An electronic device is taught by Papathomas whereby die 6 is shown and next level package 2, underfill 14 is shown having at least one binder and one filler as has been described above.

The method steps of providing, and forming recited in claims 22 and 23 are deemed to be inherently taught by the invention of Papathomas.

Claims 1, 2, 4, 5, 7, 8, 17, 18, 22, 23 are rejected.

Claims 3, 6, 9, 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 10, 12, 14, 20, 21 are considered allowable over the prior art of record.

Applicant's arguments filed 4-25-05 have been fully considered but they are not persuasive. Papathomas is deemed to continue to clearly teach the features of the instant claims as they are broadly recited. The alleged deficiency with the Papathomas reference argued by the applicant (see page 10 of applicant's arguments) is that, "Papathomas fails to disclose.....a substrate featuring a build-up layer embedded within". And applicant further contends that Papathomas shows the material between the substrate and chip and therefore not "embedded within". The claims however fail to recite nor suggest that said build up layer is "embedded within" the substrate. The claims broadly recite that a substrate "having at least one build up layer" whereby said recited language fails to exclude said layer from being formed on the substrate. Further the term "build up" layer fails to have any special meaning that would limit the structure of said layer and said term is not established to have any well known meaning in this art to define it to have a specific characteristic. Therefore the term "build up layer" in the claims has thus far been only considered as a "layer".

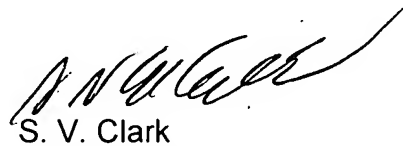
THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2815

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to S. V. Clark at telephone number (571) 272-1725.



S. V. Clark
Primary Examiner
Art Unit 2815

July 7, 2005